

**Notice of Allowability**

Application No.

09/942,391

Examiner

Woo H. Choi

Applicant(s)

BUSSER ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

- 1.  This communication is responsive to amendment filed February 2, 2005.
- 2.  The allowed claim(s) is/are 1-20.
- 3.  The drawings filed on 29 August 2001 are accepted by the Examiner.
- 4.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All    b)  Some\*    c)  None    of the:
    - 1.  Certified copies of the priority documents have been received.
    - 2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    - 3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

- 5.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
- 6.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
- 7.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- 1.  Notice of References Cited (PTO-892)
- 2.  Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3.  Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
- 4.  Examiner's Comment Regarding Requirement for Deposit of Biological Material
- 5.  Notice of Informal Patent Application (PTO-152)
- 6.  Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
- 7.  Examiner's Amendment/Comment
- 8.  Examiner's Statement of Reasons for Allowance
- 9.  Other \_\_\_\_\_

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### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Brad Knepper on March 23, 2005.

### IN THE CLAIMS

Cancel claims 21 – 23 and replace claims 1, 4, 9, and 18 with the following claims:

Claim 1. A method for initializing an array of drives, comprising:

providing an array of drives including a first drive and a second drive, a controller and a bus subsystem that enables communications between said controller and said array of drives, each of said drives being associated with a priority and with said first drive having greater priority than said second drive; and

causing substantially equal usage of said bus subsystem by all of said drives while performing a zero initialization of said drives:

wherein said causing substantially equal usage of said bus subsystem includes:

issuing a number of write related operations to each of said drives in said array, wherein each of said number of write related operations issued to a one of said drives concerns a different logical block address range than any other of said number of write related operations issued to said one of said drives, wherein said number of write related operations are queued;

determining whether each of said drives has completed at least one of said number of write operations concerning at least one logical block address range, wherein each of said number of write operations is associated with more than one logical block address;

in response to determining that each of said drives has not completed at least one of said number of write operations concerning at least one logical block address range, deferring issuing at least one more write related operation and continuing said determining whether each of said

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drives has completed at least one of said number of write operations concerning at least one logical block address range; and

in response to determining that each of said drives has completed at least one of said number of write operations concerning at least one logical block address range, issuing at least one more write related operation to each of said drives in said array.

Claim 4. A method, as claimed in Claim 1, wherein:

said issuing a number of write related operations to each of said drives includes issuing a predetermined number of at least two write operations to said first drive and a predetermined number of at least two write operations to said second drive and in which subsequent issuing of another write operation to said first drive is made after at least one of said predetermined number of at least two write operations is completed by said second drive and after at least one of said predetermined number of at least two write operations is completed by said first drive.

Claim 9. An apparatus for initializing an array of drives, comprising:

an array of drives for storing information, said array of drives including at least a first drive and a second drive with said first drive being associated with a higher priority than said second drive, wherein each of said drives in said array is associated with a queue operable to store a number of write commands;

a bus subsystem connected to said array of drives; and

a controller in communication with said array of drives using said bus subsystem, said controller for controlling issuance of write operations to each drive within said array, wherein after an initial set of write operations is issued to each of said drives within said array, an additional write operation is not issued to each of said drives in said array until at least one write operation included in said initial set of write operations has been completed on each of said drives, and wherein each of said write operations in said initial set relates to a logical block address range that comprises more than one logical block address.

Claim 18. A method for initializing an array of storage devices, comprising:

receiving a command to initialize a storage array, wherein said storage array includes a number of storage devices;

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issuing at least first and second write related operations to each of said storage devices in said array, wherein said first write related operation concerns a first logical block address range and said second write related operation concerns a second logical block address range; and

only in response to determining that every one of said storage devices included in said storage array has completed at least one of said at least first and second write related operations, issuing an additional write related operation to every one of said storage devices in said storage array, wherein said additional write related operation concerns a logical block address range not included in said first logical block address range or said second logical block address range, and wherein said logical block address ranges each comprise more than one logical block address.

***Allowable Subject Matter***

Claims 1 – 20 allowed.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Woo H. Choi whose telephone number is (571) 272-4179. The examiner can normally be reached on M-F, 9:00-5:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*ahc*  
whc

March 28, 2005

  
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